TECHNICAL REVIEW DOCUMENT for OPERATING PERMIT 020PLR243

Larimer County Landfill Larimer County Facility ID: 0690381

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1. Purpose

This document will establish the basis for decisions made regarding the Applicable Requirements, Emission Factors, Monitoring Plan and Compliance Status of Emission Units covered within the Colorado Title V Operating Permit proposed for this site. It is designed for reference during review of the proposed permit by the EPA, during Public Comment, and for other interested parties. Information in this report is primarily from the application received on February 8, 2002, as well as numerous discussions with the applicant. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility, made in conjunction with the processing of this operating permit application, have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised Construction Permit.

2. <u>Source Description</u>

The Larimer County Landfill is classified as a municipal solid waste landfill, which falls under the Standard Industrial Classification 4953. This facility is located at 5887 South Taft Hill Road, Larimer County, Colorado. The State of Wyoming is an affected state within 50 miles of the facility. The Rocky Mountain National Park is a Federal Class I designated area located within 100 kilometers of this facility.

The facility is located in an area designated as attainment for all criteria pollutants. Based on the information provided by the applicant, the facility is categorized as a minor stationary source for PSD applicability purposes (no single criteria pollutant emissions with a Potential-to-Emit greater than 250 TPY) as of the issue date of this permit. The source therefore is not subject to the PSD review requirements of 40 CFR 52.21 (Colorado Regulation No. 3, Part B, Section IV.D.3). Future modifications to this facility may result in an exceedance of the major source threshold. Once that threshold is exceeded, future modifications at this facility resulting in a significant net emissions increase (see Reg 3, Part A, Section I.B.37 and 58) for any pollutant as listed in Regulation No. 3, Part A, Section I.B.58 or a modification which is major by itself may result in the application of the PSD review requirements. Facility-wide emissions are outlined below:

Pollutant	Potential-to-Emit (tons/yr)	2001 Actual Emissions (tons/yr)
PM ₁₀	72.8	72.8
PM	226.2	226.2
VOCs	21.85	10.58

The potential-to-emit VOCs emissions are calculated from EPA's Landfill Gas Model. This emission rate is based on the landfill's design capacity of 4,580,631 megagrams of degradable waste, and the landfill will not emit at this rate until 2008. The actual VOCs emissions are also based on EPA's Landfill Gas Model. However, this emission rate was the emission rated predicted by the model for the 2001 calendar year.

In the operating permit, compliance with the annual limits for the PM₁₀ and PM emissions will be demonstrated by the implementation of the Fugitive Emissions Control Plan. The source will be required to certify semi-annually that the Fugitive Emissions Control Plan is being implemented. The source will also be required to calculate the VOCs emissions annually, using EPA's Landfill Gas Model. The model predicts the landfill gas emissions only on an annual basis. This is the reason why the annual frequency is required instead of the monthly frequency. Any exceedances of the annual limits will result in the source being out of compliance with the terms and conditions of the operating permit. The source will provide compliance monitoring reports semi-annually and compliance certification reports annually.

The Larimer County Landfill started operation in 1963. In 1995, the landfill was vertically expanded to increase the capacity. This expansion was considered a modification under NSPS, Subpart WWW regulation (Standards of Performance for Municipal Solid Waste Landfills). The area of the landfill is now approximately 180 acres. The capacity of the landfill is 7.04 million cubic meters in term of volume and 4,580,631 megagrams of degradable waste in term of weight. At the current waste acceptance rate, the landfill is expected to be closed in 2008.

The source submitted an application for a construction permit on July 3, 2001. Initial Approval Construction Permit 01LR0634 was issued on April 8, 2002. The Final Approval construction permit will not be issued for this facility. Instead, it has been incorporated into the operating permit in accordance with the procedures outlined in Colorado Regulation No. 3, Part C.

3. Emission Sources

The following emission sources are specifically regulated under the terms and conditions of the operating permit for this facility.

E001 - Fugitive Particulate Matter Emissions

- **a. Applicable Requirements** The regulations that are applicable to the fugitive particulate matter emissions are found in Colorado Regulation No.1.III.D. Specifically, the source must have a fugitive dust control plan to minimize the emissions. The 20% opacity guideline, the off-property transport provision, and the nuisance provision are also applicable to this emission point.
- **b.** Emission Factors The permitted fugitive particulate matter emissions were calculated by the source. These values were more conservative than the Division's calculations. Therefore, the source's estimates were set as the permit limits. The construction permit engineer believed that the source's calculations were more detailed and therefore, it was more accurate than the Division's calculations. The source used various sections of AP-42 to calculate the emissions.
- **c. Monitoring and Compliance** The source will demonstrate compliance with the particulate matter emission limits by implementing the Fugitive Emissions Control Plan that is outlined in the permit. In addition, the source will be required to perform a weekly check of the measures in the plan to ensure that the plan is being implemented and it is effective. The source certified in the operating permit application that the landfill is currently in compliance with the applicable requirements.

E002 – VOCs Emissions from Landfill

- **a. Applicable Requirements** The requirements that are applicable to this emission point are the VOCs emission limit and the NSPS, Subpart WWW regulations. The main requirement of Subpart WWW is the submittal of the annual non-methane organic compounds (NMOCs) emission report. If the annual report shows that the NMOCs emission rate is greater than 50 megagrams per year, the source may have to install a gas collection and control system.
- **b.** Emission Factors The landfill gas emissions were estimated with EPA's Landfill Gas Model Version 2.0. The values of the parameters used in this model were:

Lo = methane generation potential (cubic meters per megagrams solid waste). A value of 100 m³/megagrams was used in the model. This value is acceptable when used to demonstrate compliance with the permit limit. However, the source must use a value of 170 m³/megagrams for the annual NMOCs emission report. This requirement is outlined in §60.754(a)(1).

K= methane generation rate constant (year ⁻¹). The default value for this parameter is

0.05. However, the landfill is located in an area that receives less than 25 inches of rain per year, based on a thirty-year annual average. The regulation allows the source to use a value of 0.02 instead of 0.05.

C = concentration of NMOCs (parts per million by volume as hexane). A NMOCs concentration of 1000 ppm was used in the model. This concentration is different then the concentration that was used to estimate the VOCs emissions in Initial Approval Construction Permit 01LR0634. The concentration used in the construction permit was 636 ppm. This difference in the concentration accounts for the difference in the VOCs emission limit of 13.88 tons/yr in the construction permit versus the VOCs emission limit of 21.85 tons/yr in the operating permit.

The source performed a Tier II test in December of 2000, and the site-specific concentration was determined to be 636 ppm. Tier II test results from other landfills in Colorado show that the NMOCs concentration can reach as high as 2438 ppm. The test data also show that the majority of the landfills (five out of six landfills) had concentrations less than 1000 ppm. The source will most likely be required to perform other Tier II tests and if the concentrations of the tests are greater than 636 ppm, the source may be out compliance with the VOCs emission limit. The 1000 ppm value was used in the model because statistically, future tests would most likely result in concentrations less than 1000 ppm. If a future test shows that the actual concentration is greater than 1000 ppm and this results in the source being out of compliance with VOCs emission limit, the Division and the source will have to work together to resolve the non-compliance issue.

Landfill capacity = the capacity of this landfill is 4,580,631 megagrams of degradable waste. This value was given in the Title V Permit Application.

The EPA's Landfill Gas Emission model predicted that the highest NMOCs emission rate that will ever occur at this landfill is 50.82 megagrams per year (56.02 tons/yr). This emission rate will not take place until 2008. Of the total NMOCs emissions, only 39% (21.85 tons) are VOCs emissions. All of the parameters used in the model should remain constant throughout the term of the operating permit, except for the NMOCs concentration. This issue was discussed earlier in the section above.

c. Monitoring and Compliance – The source will demonstrate compliance with the VOCs emission limit with EPA's Landfill Gas Model, Version 2.0 or the most current version. This model will be run on an annual basis. The result from the model will be multiplied by 0.39 (39%) to derive the VOCs emissions. The model predicts the landfill gas emissions on an annual basis. Therefore, it is not necessary for the source to demonstrate compliance with the emission limit on a rolling 12-month basis. The source certified in the operating permit application that the landfill is currently in compliance with the applicable requirements.

Emission Factors

From time to time published emission factors and/or other emission estimating methods are changed based on new or improved data. A logical concern is what happens if the use of the new factors/methods in a calculation results in a source being out of compliance with a permit

limit. For this operating permit, the emission factors, equations, and/or other emission estimating methods included in the permit are considered to be fixed until changed by the permit. Obviously, emission factors dependent of the fuel sulfur content or heat content of the fuel cannot be fixed and will vary with the test results. The method for determining the emissions is, however, fixed. It is the responsibility of the permittee to be aware of changes in the emission factors, etc. and to notify the Division in writing of impacts on the permit requirements when there is a change. Upon notification, the Division will work with the permittee to address the situation. In addition, the Division will review the factors, etc. as appropriate during permit modifications and renewals.

4. <u>Insignificant Activities</u>

The following is a list of insignificant activities that was provided by the source to assist in the understanding of the facility layout:

- Paint and solvent bulking operations (HHW Facility)
- HAZCAT testing (HHW Facility)
- Welding for equipment maintenance and repair (Maintenance Shop, MRF)
- Miscellaneous spray painting
- Landscaping/housekeeping devices <10 HP
- Chemical storage areas (Shop, MRF, HHW)
- Hotsy steam/pressure washer (water truck)
- Propane storage tanks (shop, MRF)
- One (1) 2000-gallon used oil storage tank (Tank #7)
- One (1) 500-gallon gasoline storage tank (Tank #5)
- One (1) 2000-gallon and one (1) 500-gallon diesel storage tanks (Tank #4 and #6)
- Propane -fueled heaters (Shop, MRF)
- Propane-fuel fork lifts (Shop, MRF, HHW)
- Glass sorting and handling (MRF)
- Herbicide use for on-site weed control
- Ventilation of diesel exhaust from shop building
- Nonroad engines bulldozer, compactors, scrapers, loaders, tractor, ect.
- Storm water detention and leachate evaporation ponds

5. <u>Alternative Operating Scenarios</u>

There are no alternative operating scenarios for this facility.

6. Permit Shield

The source did not request any permit shields for this facility in the permit application.

7. Accidental Release - 112(r)

Section 112(r) of the Clean Air Act mandates a new federal focus on the prevention of chemical accidents. Sources subject to these provisions must develop and implement risk management programs that include hazard assessment, a prevention program, and an emergency response program. They must prepare and implement a Risk Management Plan (RMP) as specified in the Rule.

Based on the information provided by the applicant, this facility is not subject to the provisions of the Accidental Release Prevention Program (Section 112(r) of the Federal Clean Air Act).